Forsta

Forsta Flex Extension Development Guide

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What's New in this Revision?

This document has been available for some years in another format. The document has been reformatted but there are no material changes to the content.

Note: The general layout and language in this document is continually being corrected, adjusted and improved to ensure the user has the best possible source of information. Only NEW information and details of functionality that has changed since the previous issue are listed here - minor corrections to the text and document layout are not listed.

Important
We need your feedback so we can improve this document and provide you with the information you require. If you have any comments or constructive criticism concerning the content or layout of this documentation, please send an email to documentation@forsta.com. Please include in your email the section number and/or heading text of the section to which your comment applies.

1. Authentication with OAuth

Forsta Flex uses OAuth for authentication. The OAuth protocol enables extensions and Forsta Plus to communicate without requiring users to disclose their Forsta Plus credentials. It utilizes shared consumer secret
(each extension will have its own secret) to sign the request between the two parties. Signing the request will ensure that someone cannot alter the request (changing any of the submitted values) without having the consumer secret. It also prevents unauthorized parties from calling the Flex framework. The consumer secret is never transferred over the wire. OAuth does not handle encryption, so all communication between Forsta Flex Extension and Forsta Plus is done over HTTPS.

A request between Forsta Plus and the extension, and vice versa will always have the following standard OAuth fields:

- oauth_consumer_key - The identifier portion of the client credentials (equivalent to a username).

- oauth_token - The token value used to associate the request with the resource owner. If the request is not associated with a resource owner (no token available), clients MAY omit the parameter. In most of the Forsta Flex services, this will not be used.

- oauth_nonce - A nonce is a random string, uniquely generated by the client to allow the server to verify that a request has never been made before

- oauth_signature_method - should be set to "HMAC-SHA1"

- oauth_timestamp - The timestamp is expressed in the number of seconds since January 1, 1970 00:00:00 GMT.

- oauth_version - should be set to "1.0"

- oauth_signature – signature computed from the signature base string

These fields can be supplied in the query string or in the authorization header.

The oauth_consumer_key is obtained when first setting up the extension in Forsta Plus. The oauth_signature is a signature computed from the signature base string and a secret key that only the extension (and Forsta Plus) knows about. This is how Forsta Plus or the extension can verify that the request is coming from the correct sender.

The time stamp will ensure that a request will expire after a certain configurable time. This will limit the possibility of replay attacks.

See OAuth specification for more details.

There are two scenarios for Forsta Flex extensions that will be discussed further in the following two sections. These are "OAuth usage when Forsta Plus is calling the Extension" and "OAuth usage when the Extension is calling Forsta Plus".

OAuth usage when Forsta Plus is calling the Extension

When Forsta Plus is calling the extension, Forsta Plus will supply the standard OAuth fields (listed in Overview section). In order to ensure that the call actually comes from Forsta Plus and has not been altered, the extension should compute the signature from the Signature Base String and compare it with the value passed from Forsta Plus in the
oauth_signature field.

If you are using .NET, you can utilize the Forsta Plus Flex SDK, and with the following lines the signature can be verified.

```
var context=
OAuthSecurityContextFactory.CreateContextFromRequest(Request);
context.ConsumerSecret = "Your consumer secret";
context.ValidateSignature();
```

See http://tools.ietf.org/html/rfc5849, section "3.4. Signature", for more information about how to compute the signature.

OAuth usage when the Extension is calling Forsta Plus

When the extension needs to call Forsta Plus, all the standard OAuth fields are required to be included in the request. If you are using .NET, you can utilize the Forsta Plus Flex SDK.

The following methods enable you to create the OAuth security context:

```
var
context=OAuthSecurityContextFactory.CreateContextFromExistingContext(…)
var context=OAuthSecurityContextFactory.CreateContextWithSecrets(…)
```

If you are passing the OAuth fields in the authorization header, you can use the context.AuthorizationHeader property to get hold of security authorization header string.
If you are passing the OAuth fields in the query string, then you the follow method which will return the Uri with all the standard OAuth fields.

```
context.GetSignedUri(OAuthPlacement.QueryString);
```

If you are not using .NET, then look at the OAuth specification (http://tools.ietf.org/html/rfc5849) for more details. You can also utilize a 3rd party OAuth library as mentioned in the next section.

Using OAuth without the Forsta Plus Flex SDK

If you are not using .NET or do not wish to use the Forsta Plus Flex SDK, there are multiple OAuth libraries available for use that supports the most popular languages like Java, Javascript, Objective-C, Perl, PHP and Rugby.

http://oauth.net/code/

2. Email

For each batch emailing job, a sync call is made to the Email extension. Ideally, there should be just one active Email extension per project. If more than one active extension exists, only the first such extension will be invoked. The emailing job is terminated if the call to the extension fails for some reason. The emailing extension is sent addresses in batches of 200 email addresses for filtering.

Direction

Outbound (Forsta Plus -> Extension)

URL

```
http://{hostName}/EmailOptOut/Filter/{companyId}/{projectId}
```

Where:

- hostName [string]: The network name of the machine hosting the email extension.

- companyId [int]: The Id of the Company in Forsta Plus

- projectId [string]: The Id of the Forsta Plus project.

Supported request methods

POST

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Optional

- panelId - The panel id identifying the panel with which the email addresses are associated.

Request

ContentType

application/json

```
{"PipingVariableNameCollection":["OptOut:CompanyLink","OptOut:PanelLink",
"OptOut:ProjectLink"],
"EmailAddressCollection":[{"RespondentId":1,"EmailAddress":"user1@host.do
main","CustomHeaders":{"X-sid":"ADESRTSY","X-
greeting":"hello"}},{"RespondentId":2,"EmailAddress":user2@host.domain,"C
ustomHeaders":{"X-sid":"DPCVAEUY","X-greeting":"hei"}}]}
```

Example Content

The Request contains a JSON formatted EmailExtensionRequest object (ref. Flex SDK) containing a collection of Email Addresses and collection of Piping Variables. Three piping Variables are currently supported:

- OptOut:CompanyLink – The link to opt out of all future survey invitations from the company.

- OptOut:PanelLink – The link to opt out of all future survey invitations linked to a panel.

- OptOut:ProjectLink – The link to opt out of all future survey invitations for a survey project.

Response

ContentType

application/json

Content

```
[{"PipingVariableCollection":null,
"EmailAddress":"user1@host.domain","RespondentOptOut":1,
"RespondentId":1},{"PipingVariableCollection":[{"Name":"OptOut:CompanyLin
k","Value":http://optoutcompanylink}
,{"Name":"OptOut:PanelLink","Value":"http://optoutpanellink"},{"Name":"Op
tOut: ProjectLink ","Value":"http://optoutprojectlink"}],
"EmailAddress":"user2@host.domain", "RespondentOptOut":0,
"RespondentId":2}]
```

The Response contains JSON formatted EmailExtensionResponseCollection object (ref. Flex SDK) containing a collection of EmailExtensionResponses. There is a response object in the collection for each of the email addresses in the request. The response object contains the email address, the Respondent OptOut status, which is an enum defined in Confirmit.Extensibility.Sdk.Email.RespondentOptOut and a PipingVariableCollection object of links that the respondent can use to opt out.

Sample

How to create the response using the SDK:

```
Response.ContentType = "application/json";
var responseCollection = new EmailExtensionResponseCollection();
Collection<PipingVariable> variables = new Collection<PipingVariable>();
variables.Add(new PipingVariable
{
Name = PipingVariable.COMPANY_LINK,
Value = "http://companyLink
});
responseCollection.Add(
new EmailExtensionResponse {
EmailAddress = "user1@host.domain",
PipingVariableCollection = variables,
RespondentOptOut = RespondentOptOut.None,
RespondentId = 1
})

var json = new JavaScriptSerializer().Serialize(responseCollection);
serializer.WriteObject(Response.OutputStream, json);
```

3. Email Opt-out via Script

Respondent's or panelist's email address can be added to Flex opt-out blacklist from a survey script.

Direction

Outbound (Forsta Plus -> Extension)

URL

Provided by the extension when the extension is registered in Forsta Plus.

URL format:

> https://flex18_5.firmglobal.com/EmailOptOut/Scripting/Blacklist

Supported request methods

GET

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- optOutType - Specifies on what level the address will be added to opt-out blacklist.

Accepted values: PROJECT, PANEL and COMPANY

Response

ContentType

> text/json

Content

> The content returned from the script extension is a json encoded set of name/value pars.

> If the call is successfull status "OK" and no error message are returned. Otherwise the extension returns "Failed" as status and a proper error message.

```
[{"Key":"Status","Value":<OK/Failed>}]
[{"Key":"Message","Value":<error message>}]
```

Sample

> How to call a script extension from survey script:

```
function BlacklistEmailAddress()
{
var ext = Extension("Email Opt-Out");
if(ext.IsValid)
{
var p = new Hashtable();
p["optOutType"] = "PROJECT";

var result = ext.GetRequest("Blacklist", p);
if(result.IsValid)
{
return "Status: " + result["Status"] + "; Message: " +
result["Message"];
}
return "Result is invalid";
}
return "Extension script name is invalid";
}
```

In the example above:

- "Email Opt-Out" is the Scripting Name as registered in Forsta Plus. This is specified along with the URL.

- "Blacklist" is the script method that will be called. The set of supported methods are provided by the extension developers.

- The Hastable p is the property bag, containing the "optOutType" parameter.

```
function BlacklistEmailAddress()
var ext = Extension("Email Opt-Out");
if(ext.IsValid)
```

4. Information

All extensions have to provide a information URL pointing to a XML file. The XML file contains details about the extension.

Direction

Outbound (Forsta Plus -> Extension)

URL

Provided by the extension when the extension is registered in Forsta Plus.

Supported request methods

GET

Requires Authentication

false

Parameters

Response

200 OK

Sample

```
<ExtensionDetails xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<Title>SMS Surveys</Title>
<Version>1.2</Version>
<Description>The SMS Surveys Extension provides the ability to exchange
survey questions and responses with respondents via SMS messages. Client
must maintain a separate contract with a Forsta-approved SMS provider.
Forsta does not resell SMS messaging transport, and cannot be held
responsible in any way for the performance of the SMS provider, the
services provided by it, or any failure to deliver/receive SMS messages.
Any support requests from the client relating to the SMS services must be
routed directly by the client to that provider. For more details, refer
to the User Documentation. The SMS Surveys Extension is not subject to
the overall Forsta Service Level Agreements.</Description>
<CreatedBy>Forsta</CreatedBy>
<Contact>contact@customer.nn</Contact>
</ExtensionDetails>
```

5. PanelistServices - AddCreditTransaction

Adds a credit transaction to a given panelist.

Direction

Inbound(Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

> https://flex18_5.firmglobal.com/PanelPortalService.svc/AddCreditTransaction/

Supported request methods

POST

Requires Authentication

True

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

ContentType

text/xml

Content

```
<?xml version="1.0" encoding="utf-16"?>
<AddCreditTransactionParameters
xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<Credits>100</Credits>
<Comment>testing</Comment>
<FieldNames
xmlns:a="http://schemas.microsoft.com/2003/10/Serialization/Arrays"><a:st
ring>custVar</a:string></FieldNames>
<FieldValues
xmlns:a="http://schemas.microsoft.com/2003/10/Serialization/Arrays"><a:st
ring>testVal</a:string></FieldValues>
<SurveyId>p1212</SurveyId>
<SecondaryPanelistId>6</SecondaryPanelistId>
<PanelistTransactionId>5</PanelistTransactionId>
<Pending>true</Pending>
<TransactionType>4</TransactionType>
<SectionId>test</SectionId>
</AddCreditTransactionParameters>
```

Sample

```
 /// <summary>
/// Adds a credit transaction for the given panelist
/// </summary>
/// <param name="token">a valid OAuthToken </param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <returns></returns>
internal static bool AddCreditTransaction(OAuthToken token, string
webserviceUrl, string panelId, string consumerKey, string consumerSecret)
{
 var uri = UriHelper.GetAddCreditTransactionUri(webserviceUrl);


 var form = new AddCreditTransactionParameters
 {
               Credits = 100,
                 Comment = "testing",
                 PanelistTransactionId = 5,
                 SecondaryPanelistId = 6,
                 SectionId = "test",
                 SurveyId = "p1212",
                 Pending = true,
                 TransactionType = 4,
                 FieldNames = new [] { "custVar" },
                 FieldValues = new [] { "testVal" }
 };

 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
 {
  var xml = new XmlSerializer(typeof(AddCreditTransactionParameters));
  xml.Serialize(writer, form);
 }

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, token.Key, token.Secret, uri, null, "POST");

 var request = Loader.CreateRequest(uri, context, "POST",
body.ToString(), Encoding.Unicode, ContentType.Xml);
 request.AllowAutoRedirect = false;
 ResponseError error;
 Loader.ReadResponse(request, out error);
 return error == null ? true : false;

}
```

6. PanelistServices - ChangePassword

Change password for logged in panelist.

Direction

Inbound(Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be
        https://flex18_5.firmglobal.com/PanelPortalService.svc/ChangePassword/{PanelId}/

Supported request methods

POST

Requires Authentication

True

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

```
<?xml version="1.0" encoding="utf-16"?>
<ChangePasswordParameters>
  <OldPassword></OldPassword>
  <NewPassword></NewPassword>
  <Language></Language>
</ChangePasswordParameters>
```

Language parameter controls language of passwordvalidation messages

Response

ContentType

   text/xml

Content

   If password validation error:

```
<ResponseError>
<ErrorMessage></ErrorMessage>
</ResponseError>
```

Sample

```
/// <summary>
/// Change password for current panelist
/// </summary>
/// <param name="token">a valid OAuthToken</param>
/// <param name="passwordFrom">Old password</param>
/// <param name="passwordTo">New password</param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="panelId">Id of current Community Panel</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="comsumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <param name="language">Language for passwordvalidation
messages</param>
/// <returns></returns>
internal static bool ChangePassword(OAuthToken token, string
passwordFrom, string passwordTo, string webserviceUrl, string panelId,
string consumerKey, string comsumerSecret, int language)
{
 var uri = UriHelper.GetChangePasswordUri(webserviceUrl, panelId);

 var form = new ChangePasswordParameters
 {
  NewPassword = passwordTo,
  OldPassword = passwordFrom,
  Language = language
 };

 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
 {
  var xml = new XmlSerializer(typeof(ChangePasswordParameters));
  xml.Serialize(writer, form);
 }

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
comsumerSecret, token.Key, token.Secret, uri, null, "POST");

 var request = Loader.CreateRequest(uri, context, "POST",
body.ToString(), Encoding.Unicode, ContentType.Xml);
 request.AllowAutoRedirect = false;
 ResponseError responseError;
 Loader.ReadResponse(request, out responseError);

 return responseError == null ||
string.IsNullOrEmpty(responseError.ErrorMessage);

}
```

7. PanelistServices - EditProfileUrl

Returns a Url to a EditProfile survey. You can specify a returnUrl where the current panelist will be redirected after the survey is completed.

Direction

Inbound(Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

> https://flex18_5.firmglobal.com/PanelPortalService.svc/EditProfileUrl/

Supported request methods

POST

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

```xml
<?xml version="1.0" encoding="utf-16"?>
<EditProfileUrlParameters>
  <PanelId></PanelId>
  <EditProfileProjectId></EditProfileProjectId>
  <Language></Language>
  <ReturnUrl></ReturnUrl>
</EditProfileUrlParameters>
```

Optional

- EditProfileUrlParameters.Language, if -1, default lang on survey will be used.

- EditProfileUrlParameters.ReturnUrl, if NULL, default Return Url on survey will be used.

Response

ContentType

> text/xml

Content

> Returns a string with the Url

```
<string>[server]/[projectId].aspx?__sid__=[sid]</string>
```

Sample

```
 /// <summary>
/// Gets an Url for a specified edit profile survey
/// </summary>
/// <param name="token">a valid OAuthToken</param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="panelId">Id of current Community Panel</param>
/// <param name="returnUrl">Url to where the user is redirected after
survey complete</param>
/// <param name="editProfileProjectId">ProjectId of the EditProfile
survey</param>
/// <param name="language">Language for the EditProfile survey </param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <returns>An url to a survey. Can only be used once.</returns>
internal static string GetEditProfileUrl(OAuthToken token, string
webserviceUrl, string panelId, string returnUrl, string
editProfileProjectId, int language, string consumerKey, string
consumerSecret)
{
 var uri = UriHelper.GetEditProfileUri(webserviceUrl);
 var form = new EditProfileUrlParameters
 {
  PanelId = panelId,
  ReturnUrl = returnUrl,
  EditProfileProjectId = editProfileProjectId,
  Language = language
 
 };

var body = new StringBuilder();
using (var writer = new StringWriter(body))
{
 var xml = new XmlSerializer(typeof(EditProfileUrlParameters));
 xml.Serialize(writer, form);
}

var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, token.Key, token.Secret, uri, null, "POST");

var request = Loader.CreateRequest(uri, context, "POST", body.ToString(),
Encoding.Unicode, ContentType.Xml);
request.AllowAutoRedirect = false;
HttpStatusCode statusCode;
ResponseError responseError;

var url = Loader.ReadResponse&lt;string&gt;(request, false, out
statusCode, out responseError);

return statusCode == HttpStatusCode.OK ? url : null;

}
 
```

8. PanelistServices - GetCreditBalance

Gets the sum of all credits for the given panelist. Pending credits will be excluded.

Direction

Inbound (Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

https://flex18_5.firmglobal.com/PanelPortalService.svc/GetCreditBalance/

Supported request methods

GET

Requires Authentication

True

(see Authentication with OAuth on page 1 for more information)

Response

ContentType

text/xml

Content

Returns an integer

Sample

```
/// <summary>
/// Gets the sum of all credit transactions for the given panelist
/// </summary>
/// <param name="token">a valid OAuthToken </param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <returns></returns>
internal static CreditTransactionList GetCreditTransactions(OAuthToken
token, string webserviceUrl, string panelId, string consumerKey, string
consumerSecret)
{
 var uri = UriHelper.GetGetCreditBalanceUri(webserviceUrl);


 var form = new GetCreditTransactionsParameters
 {
 };

 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
 {
  var xml = new XmlSerializer(typeof(GetCreditTransactionsParameters));
  xml.Serialize(writer, form);
 }
 var context = OAuthSecurityContextFactory.CreateContextWithSecrets(
                InputValues.ConsumerKey, InputValues.ConsumerSecret,
token.Key, token.Secret, uri, null, "GET");
 var request = Loader.CreateRequest(uri, context, "GET", null,
Encoding.ASCII);
 request.AllowAutoRedirect = false;

 ResponseError error;
 var statusCode = HttpStatusCode.OK;
 var balance = Loader.ReadResponse<int>(request, out statusCode, out
error);
 return statusCode == HttpStatusCode.OK ? balance : -1;
```

9. PanelistServices - Logon

Logs on a panelist to a Community Panel The logon service is using oAuth, and returns a Token that must be used when calling all services that requires an authenticated user. Returns a OAuthToken that will be used when accessing other services

Direction

Inbound (Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

> https://flex18_5.firmglobal.com/PanelPortalService.svc/Logon/

Supported request methods

POST

Requires Authentication

false

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

ContentType

> text/xml

Content

```
<LogonParameters>
  <UserName></UserName>
  <Password></Password>
  <PanelId></PanelId>
  <Language></Language>
</LogonParameters>
```

Optional

Language

Response

ContentType

> text/xml

Content

> Returns a OAuthToken

```
<oauthtoken>
<key></key>
<secret></secret>
</oauthtoken>
```

Sample

```
/// <summary>
/// Panelist login
/// </summary>
/// <param name="panelistPassword">Current panelists password</param>
/// <param name="panelistUserName">Current panelists userName</param>
/// <param name="projectId">Id of the Community Panel to log in
to</param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <param name="language">Controls language of error messages</param>
/// <returns>An OAuthToken</returns>

internal static OAuthToken LogIn(string panelistPassword, string
panelistUserName, string projectId, string webserviceUrl, string
consumerKey, string consumerSecret, int language)
{
 var uri =  new Uri(String.Format("{0}/PanelPortalService.svc/Logon/",
webserviceUrl));

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, null, null, uri, null, "POST");

 var form = new LogonParameters { PanelId = projectId, UserName =
panelistUserName, Password = panelistPassword, Language = language };

 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
  {
   var xml = new XmlSerializer(typeof(LogonParameters));
   xml.Serialize(writer, form);
  }

 var request = Loader.CreateRequest(uri, context, "POST",
body.ToString(), Encoding.Unicode, ContentType.Xml);
 request.AllowAutoRedirect = false;

 HttpStatusCode statusCode;
 ResponseError error;
 OAuthToken token = Loader.ReadResponse<OAuthToken>(request, false, out
statusCode, out error);

 return statusCode == HttpStatusCode.OK ? token : null; }
```

10. PanelistServices - GetCreditTransactions

Gets credit transactions for the given panelist using the specified filter options.

Direction

Inbound (Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

https://flex18_5.firmglobal.com/PanelPortalService.svc/GetCreditTransactions/

Supported request methods

POST

Requires Authentication

True

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

ContentType

text/xml

Content

```
<GetCreditTransactionsParameters
xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<TopN>5</TopN>
<FieldNames
xmlns:a="http://schemas.microsoft.com/2003/10/Serialization/Arrays"><a:st
ring>custVar</a:string></FieldNames>
<FromDate>2015-06-10T15:20:55.5909437+02:00</FromDate>
<ToDate i:nil="true"/>
<StartPosition>0</StartPosition>
<OrderAscending>false</OrderAscending>
</GetCreditTransactionsParameters>
```

Response

ContentType

text/xml

Content

Returns a CreditTransactionList object

```
<CreditTransactionList>
 <CreditTransactions>
  <Survey>
   <CreditId></CreditId>
   <PanelistId></PanelistId>
   <SecondaryPanelistId></SecondaryPanelistId>
   <PanelistTransactionId></PanelistTransactionId>
   <Credits></Credits>
   <SurveyId></SurveyId>
   <SectionId></SectionId>
   <Comment></Comment>
   <Created></Created>
   <Pending></Pending>
   <TransactionType></TransactionType>
   <FieldNames></FieldNames>
   <FieldValues></FieldValues>
  </CreditTransaction>
 </CreditTransactions>
</CreditTransactionList>
```

Sample

```
 /// <summary>
/// Gets credit transactions for the given panelist
/// </summary>
/// <param name="token">a valid OAuthToken </param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <returns></returns>
internal static CreditTransactionList GetCreditTransactions(OAuthToken
token, string webserviceUrl, string panelId, string consumerKey, string
consumerSecret)
{
 var uri = UriHelper.GetGetCreditTransactionsUri(webserviceUrl);


 var form = new GetCreditTransactionsParameters
 {
     TopN = 5,
     FieldNames = new [] { "custVar" },
     FromDate = DateTime.Now.AddHours(-1)
 };

 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
 {
  var xml = new XmlSerializer(typeof(GetCreditTransactionsParameters));
  xml.Serialize(writer, form);
 }

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, token.Key, token.Secret, uri, null, "POST");

 var request = Loader.CreateRequest(uri, context, "POST",
body.ToString(), Encoding.Unicode, ContentType.Xml);
 request.AllowAutoRedirect = false;
 ResponseError error;
 var statusCode = HttpStatusCode.OK;
 var creditList = Loader.ReadResponse<CreditTransactionList>(request, out
statusCode, out error);
 return statusCode == HttpStatusCode.OK ? creditList : null;
}
```

11. PanelistServices - PanelInfo

Returns a PanelInfo object containing languages and name of the current Community Panel.

Direction

Inbound (Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be
https://flex18_5.firmglobal.com/PanelPortalService.svc/PanelInfo{language}/

Supported request methods

GET

Requires Authentication

True

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- Language - Language in which Panel Title is returned

Response

ContentType

text/Json

Content

Returns a PanelInfo object

```
{
  "Languages":
     [{"Code",
      "Name",
      "NativeName"
     }],
  "Name"
}
```

Sample

```
 /// <summary>
/// Get information about the current Community Panel
/// </summary>
/// <param name="token">a valid OAuthToken</param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="language">Langauge in which the Panel Title is
returned</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <returns>A PanelInfo object</returns>
/// <remarks>AbsoluteExpiration for 1 hour</remarks>
internal static PanelInfo GetPanelInfo(OAuthToken token, string
webserviceUrl, int language, string consumerKey, string consumerSecret)
{
 var uri = UriHelper.GetPanelInfoUri(webserviceUrl, language);

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, token.Key, token.Secret, uri, null, "GET");

 var request = Loader.CreateRequest(uri, context, "GET", null,
Encoding.ASCII);
 request.AllowAutoRedirect = false;
 HttpStatusCode statusCode;
 ResponseError responseError;
 var panelInfo = Loader.ReadResponse<PanelInfo>(request, true, out
statusCode, out responseError);

 return statusCode == HttpStatusCode.OK ? panelInfo : null;

}
```

12. PanelistServices - Panelist

Returns a Panelist object. with a set of static values and a set of dynamic values based on input field FormsToRetrive in PanelistParameters. PanelistVariables is a collection with Name, Answers, Title, Text, Type and value for requested forms. For Multi and Single answers are in the Answers property while forms of other types will have answers in the Value property. For multies, only answers that the current panelist has checked will be returned.

Direction

Inbound (Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

>   https://flex18_5.firmglobal.com/PanelPortalService.svc/UserInfo/

Supported request methods

POST

Requires Authentication

True

About authentication

Parameters

Required

ContentType

>   text/xml

Content

```xml
<?xml version="1.0" encoding="utf-16"?>
<PanelistParameters>
  <FormsToRetrive></FormsToRetrive>
  <IncludeCredits></IncludeCredits>
  <Language></Language>
</PanelistParameters>
```

Optional

- PanelistParameters.FormsToRetrive, semicolon seperated list of form names

- Language, Default 9 (English)

- IncludeCredits, Default false

Response

ContentType

>   text/xml

Content

>   Returns a Panelist Object. The PanelistId is named 'ResponseId' in the panel database schema.

```
 <Panelist>
 <Credits>
  </Credits>
    <PanelId></PanelId>
    <PanelistVariables>
     <PanelistVariable>
        <Answers/>
        <Name></Name>
        <Text/>
        <Title></Title>
        <Type></Type>
        <Value></Value>
     </PanelistVariable>
    </PanelistVariables>
 <ResponseId></ResponseId>
 <Unsubscribed></Unsubscribed>
 <UserName></UserName>
</Panelist>
```

Sample

```
 /// <summary>
/// Get a panelist object for current panelist
/// </summary>
/// <param name="token">a valid OAuthToken</param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <param name="language">Language in which question labels are
returned</param>
/// <returns>A Panelist object</returns>
/// <remarks>AbsoluteExpiration for 1 minute</remarks>

internal static Panelist GetPanelist(OAuthToken token, string
webserviceUrl, string consumerKey, string consumerSecret, int language)
{
 var uri = UriHelper.GetPanelistUri(webserviceUrl);

 var form = new PanelistParameters
 {
  FormsToRetrive = "email;firstName;LastName;Age;Gender",
  Language = language,
  IncludeCredits = true
 };

 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
 {
  var xml = new XmlSerializer(typeof(PanelistParameters));
  xml.Serialize(writer, form);
 }

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, token.Key, token.Secret, uri, null, "POST");

 var request = Loader.CreateRequest(uri, context, "POST",
body.ToString(), Encoding.Unicode, ContentType.Xml);
 request.AllowAutoRedirect = false;
 HttpStatusCode statusCode;
 ResponseError responseError;
 var panelist = Loader.ReadResponse<Panelist>(request, false, out
statusCode, out responseError);

 return statusCode == HttpStatusCode.OK ? panelist : null;

}
```

13. PanelistServices - ResetPassword

If a user has forgotten password and cannot login, The reset password service can be used. First use SendResetPasswordEmail to send a link to the user. The Url in this email contains a passwordKey that must be used in ResetPassword.

Direction

Inbound (Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

> https://flex18_5.firmglobal.com/PanelPortalService.svc/ResetPassword/

Supported request methods

POST

Requires Authentication

false

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

ContentType

> text/xml

Content

```
<ResetPasswordParameters>
  <PanelId></PanelId>
  <NewPassword></NewPassword>
  <ResetPasswordKey></ResetPasswordKey>
</ResetPasswordParameters>
```

Response

ContentType

> text/xml

Sample

```
 /// <summary>
/// Functionality to reset forgotten password. Use in combination with
SendResetPasswordEmail
/// </summary>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="panelId">id of current Community Panel</param>
/// <param name="userName">Current panelists userName</param>
/// <param name="newPassword">Current panelists new password</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <param name="resetPasswordKey">Param PasswordKey in Url from email
recieved when calling SendResetPasswordEmail</param>
internal void ResetPassword(string webserviceUrl, string panelId, string
userName, string newPassword, string consumerKey, string consumerSecret,
string resetPasswordKey)
{
 var uri = UriHelper.GetResetPasswordUri(webserviceUrl);
 var form = new ResetPasswordParameters { PanelId = panelId, NewPassword
= newPassword, ResetPasswordKey = resetPasswordKey };
 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
 {
  var xml = new XmlSerializer(typeof(ResetPasswordParameters));
  xml.Serialize(writer, form);
 }

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, null, null, uri, null, "Post");
 var request = Loader.CreateRequest(uri, context, "POST",
body.ToString(), Encoding.Unicode, ContentType.Xml);
 request.AllowAutoRedirect = false;

 ResponseError responseError;
 Loader.ReadResponse(request, out responseError);

 if (responseError != null)
  throw new ApplicationException(responseError.ErrorMessage);

}
```

14. PanelistServices - Resources

Returns a set of resource texts that can be used in your application. As a Company administrator you can see a list of available texts and override these. The overview and possibility to override can be found in Forsta Plus: Home -> Company -> Survey Messages -> Panel Portal. Note that resources texts are cached for one hour. GetResources returns a dictionary with name/value for resources texts in specified language. Consider using a local cache to improve user experience.

Direction

Inbound (Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

> https://flex18_5.firmglobal.com/PanelPortalService.svc/Resources/{panelId}/{language}/

Supported request methods

GET

Requires Authentication

True

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

> PanelId
>
> Language

Response

ContentType

> text/Json

Content

> Returns an object with resourceText name/value

```
 [{"Key":"PP_LOGIN","Value":"Please Log In"},
{"Key":"PP_LOGIN_FAILED","Value":"Login failed"},
{"Key":"PP_LOGOUT","Value":"Logout"},
{"Key":"PP_LOGOUT_FAILED","Value":"Logout failed"},
{"Key":"PP_USERNAME","Value":"User Name"},
{"Key":"PP_PASSWORD","Value":"Password"},
{"Key":"PP_CHANGE_PASSWORD","Value":"Change password"},
{"Key":"PP_OLD_PASSWORD","Value":"Old password"},
{"Key":"PP_NEW_PASSWORD","Value":"New password"},
{"Key":"PP_RETYPE_PASSWORD","Value":"Retype password"},
{"Key":"PP_USERNAME_OR_PASSWORD_INCORRECT","Value":"The user name or
password is illegal"},
{"Key":"PP_PASSWORDS_INCORRECT","Value":"One of the passwords are
incorrect"},
{"Key":"PP_RESET_PASSWORD","Value":"Reset password"},
{"Key":"PP_FORGOT_PASSWORD","Value":"Forgot password"},
{"Key":"PP_PASSWORDS_DOES_NOT_MATCH","Value":"Passwords does not match"},
{"Key":"PP_PASSWORD_HAS_BEEN_CHANGED","Value":"Password has been
changed"},
{"Key":"PP_COULD_NOT_CHANGE_PASSWORD","Value":"Could not change
password"},
{"Key":"PP_RESET_PASSWORD_EMAIL_SENT","Value":"Reset password email
sent"},
{"Key":"PP_WELCOME","Value":"Welcome,"},{"Key":"PP_EDIT_PROFILE","Value":
"Edit profile"},
{"Key":"PP_CHANGE_ACCOUNT_INFO","Value":"Change the account
information"},
{"Key":"PP_SURVEYS","Value":"Surveys"},
{"Key":"PP_PARTICIPATED_SURVEYS","Value":"List of participated surveys"},
{"Key":"PP_INCOMPLETE_SURVEYS","Value":"Incomplete surveys"},
{"Key":"PP_COULD_NOT_LOAD_SURVEY","Value":"Could not load survey"},
{"Key":"PP_SURVEY_HISTORY","Value":"History of surveys"},
{"Key":"PP_NAME","Value":"Name"},
{"Key":"PP_EARNED_POINTS","Value":"Earned points"},
{"Key":"PP_NOT_PARTICIPATED","Value":"You have not participated in the
following surveys"},
{"Key":"PP_PARTICIPATE_NOW","Value":"Participate
now!"},{"Key":"PP_OPTIONS","Value":"Options"},
{"Key":"PP_OVERVIEW","Value":"Overview"},{"Key":"PP_USER_SETTINGS","Value
":"User settings"},
{"Key":"PP_PANEL_INFO","Value":"Panel
info"},{"Key":"PP_HOME","Value":"Home"},
{"Key":"PP_SEND","Value":"Send"},{"Key":"PP_LANGUAGE","Value":"Language"}
,
{"Key":"PP_LANGUAGES","Value":"Languages"},
{"Key":"PP_REQUIRED_FIELD","Value":"Required field"},
{"Key":"PP_SUCCESS","Value":"Success"},
{"Key":"PP_ERROR","Value":"Error"}]
```

Sample

```
 /// <summary>
/// Returns all available system resources in specified language.
Possible to override texts pr company
/// </summary>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="panelId">id of current panel</param>
/// <param name="language">Language in which resource texts are
returned</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <returns></returns>
/// <remarks>Available without login. AbsoluteExpiration for 1
hour</remarks>
public static Dictionary<string, string> GetResourceTexts(string
webserviceUrl, string panelId, int language, string consumerKey, string
consumerSecret)
{
 var uri = UriHelper.GetResourceUri(webserviceUrl, panelId, language);

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, null, null, uri, null, "GET");

 var request = Loader.CreateRequest(uri, context, "GET");

 HttpStatusCode statusCode;
 ResponseError responseError;
 var resources = Loader.ReadResponse<Dictionary<string, string>>(request,
true, out statusCode, out responseError);

 if (statusCode == HttpStatusCode.OK)
  return resources;

 return null;
}
```

15. PanelistServices - SendResetPasswordEmail

Sends an email to specified panelist containing a link that points to a page which implements ResetPassword functionality. Use ^link^ in email body to position the generated link within the body. Forsta Plus will replace ^link^ with a valid url. If you dont use ^link^ the url will be placed at the end of the body

Direction

Inbound(Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

https://flex18_5.firmglobal.com/PanelPortalService.svc/SendResetPasswordEmail/

Supported request methods

POST

Requires Authentication

True

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

ContentType

text/xml

Content

```xml
<?xml version="1.0" encoding="utf-16"?>
<ResetPasswordEmailParameters>
  <PanelId></PanelId>
  <UserName></UserName>
  <ResetPasswordUrl></ResetPasswordUrl>
  <EmailSubject></EmailSubject>
  <PlainTextBody></PlainTextBody>
  <HtmlBody></HtmlBody>
  <EmailSender></EmailSender>
</ResetPasswordEmailParameters>
```

Sample

```
 /// <summary>
/// Sends an email containing a link that points to a page which
implements ResetPassword functionality
/// </summary>
/// <param name="token">a valid OAuthToken </param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="panelId">id of current panel</param>
/// <param name="panelistUserName"></param>
/// <param name="language">Used to pass current panelist language to the
reset password page</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <param name="resetPasswordPageUrl">Url to a page that implements
ResetPassword functionality</param>
/// <returns></returns>
internal static bool SendResetPasswordEmail(OAuthToken token, string
webserviceUrl, string panelId, string panelistUserName, int language,
string consumerKey, string consumerSecret, string resetPasswordPageUrl)
{
 var uri = UriHelper.GetSendResetPasswordEmailUri(webserviceUrl, panelId,
panelistUserName);


 var form = new ResetPasswordEmailParameters
 {
  PanelId = panelId,
  UserName = panelistUserName,
  ResetPasswordUrl = resetPasswordPageUrl + "?ProjectId=" + panelId +
"&l=" + language,
  EmailSubject = "Reset password",
  HtmlBody = " click this ^link^ to reset your password...",
  PlainTextBody = " click this ^link^ to reset your password..."
 };

 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
 {
  var xml = new XmlSerializer(typeof(ResetPasswordEmailParameters));
  xml.Serialize(writer, form);
 }

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, token.Key, token.Secret, uri, null, "POST");

 var request = Loader.CreateRequest(uri, context, "POST",
body.ToString(), Encoding.Unicode, ContentType.Xml);
 request.AllowAutoRedirect = false;
 ResponseError error;
 Loader.ReadResponse(request, out error);
 return error == null ? true : false;

}
```

16. PanelistServices - SurveyList

Returns a SurveyList object containing a collection of surveys based on search/filter/sort parameters. Note that the SurveyList object does not contain any survey urls. Use GetSurveyUrl to generate the url when needed. This is for security purpose. The link returned from GetSurveyUrl is only valid once. The object ListParameters can be used to filter, sort, set max number of returned surveys, set language and specify ListType. You can use new ListParameters() as param to use default values.

Direction

Inbound(Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

> https://flex18_5.firmglobal.com/PanelPortalService.svc/Surveys/

Supported request methods

POST

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

```xml
<?xml version="1.0" encoding="utf-16"?>
<ListParameters>
  <SortByColumn></SortByColumn>
  <SortOrder></SortOrder>
  <FilterColumn></FilterColumn>
  <FilterOperator></FilterOperator>
  <FilterValue xsi:type="xsd:int"></FilterValue>
  <Top></Top>
  <Language></Language>
  <ListType></ListType>
</ListParameters>
```

ListParameters default values:

- SortByColumn, Default value: InvitationDate

- SortOrder, Default value: Desc

- FilterColumn, Default value: None

- FilterOperator, Default value: None

- FilterValue, Default value: None

- Top, Default value: 20

- Language, Default value: 9 (English)

- ListType, Default value: started not started

Optional

> All ListParameters properties are optional, default values will then be used.

Response

ContentType

    text/xml

Content

    Returns a SurveyList object

```
<SurveyList>
 <Surveys>
  <Survey><CloseDate i:nil="true"/>
  <Id></Id>
  <InterviewEnd></InterviewEnd>
  <InterviewStart></InterviewStart>
  <InvitationDate></InvitationDate>
  <JobNumber></JobNumber>
  <Name></Name>
  <SurveyStatus></SurveyStatus>
  </Survey>
 </Surveys>
</SurveyList>
```

 The type SurveyListFilter used in ListType is a filter against current panelists SurveyStatus

```
 All = 0 (SurveyStatus <> Reserved),
 Completed = 1 (SurveyStatus == Completed OR SurveyStatus =
StoppedBySystem),
 Started = 2 (SurveyStatus == InProgress),
 NotStarted = 3 (SurveyStatus == InvitationSent),
 StartedAndNotStarted = 4 (SurveyStatus <> Completed AND SurveyStatus <>
Reserved AND SurveyStatus <> StoppedBySystem)
```

To further filter returned values that are based on more than one status codes, (All, Completed, StartedNotStarted) use FilterColumn: SurveyStatus with value: SurveyStatusCodes

Sample

```csharp
/// <summary>
/// Gets a SurveyList object based on ListParameters
/// </summary>
/// <param name="token">a valid OAuthToken</param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="language">Langauge for survey titles</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <returns>A surveyList object</returns>
internal static SurveyList GetSurveyList(OAuthToken token, string
webserviceUrl, int language, string consumerKey, string consumerSecret)
{
 var uri = UriHelper.GetSurveyListUri(webserviceUrl);
 var form = new ListParameters
 {
  Language = language,
  SortByColumn = SurveyListColumns.JobNumber,
  SortOrder = SortOrder.Asc,
  Top = 5,
  ListType = ListType.All

 };

 var body = new StringBuilder();
 using (var writer = new StringWriter(body))
 {
  var xml = new XmlSerializer(typeof(ListParameters));
  xml.Serialize(writer, form);
 }

 var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, token.Key, token.Secret, uri, null, "POST");

 var request = Loader.CreateRequest(uri, context, "POST",
body.ToString(), Encoding.Unicode, ContentType.Xml);
 request.AllowAutoRedirect = false;
 HttpStatusCode statusCode;
 ResponseError responseError;

 var surveyList = Loader.ReadResponse<SurveyList>(request, false, out
statusCode, out responseError);

 return statusCode == HttpStatusCode.OK ? surveyList : null;

}
```

17. PanelistServices - SurveyUrl

GetSurveyUrl is used to generate a unique link that is only valid for use once.

Direction

Inbound(Extension -> Forsta Plus)

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

> https://flex18_5.firmglobal.com/PanelPortalService.svc/SurveyUrl/{surveyId}/{language}/

Supported request methods

GET

Requires Authentication

True

(see Authentication with OAuth on page 1 for more information)

Parameters

Required
    SurveyId

    Language, Surveys default language is used if -1 specified

Response

ContentType

    text/Json

Content

    Returns a SurveyUrl

```
"http:\/\/l<serverUrl>\/wix\/<projectId>.aspx?__sid__=<sid>&l=<language>"
```

Sample

```
 /// <summary>
/// Returns a Url for specified survey
/// </summary>
/// <param name="token">a valid OAuthToken</param>
/// <param name="webserviceUrl">Url to the FlexService web. Obtained from
Forsta Plus</param>
/// <param name="language">Language for the survey</param>
/// <param name="surveyUrlProjectId">ProjectId of the survey</param>
/// <param name="consumerKey">Key to extension point. Obtained from
Forsta Plus</param>
/// <param name="consumerSecret">Secret to extension point. Obtained from
Forsta Plus</param>
/// <returns>An url to a survey. Can only be used once.</returns>
internal static string GetSurveyUrl(OAuthToken token, string
webserviceUrl, int language, string surveyUrlProjectId, string
consumerKey, string consumerSecret)
{
var uri = UriHelper.GetSurveyUri(webserviceUrl, surveyUrlProjectId,
language);
var context =
OAuthSecurityContextFactory.CreateContextWithSecrets(consumerKey,
consumerSecret, token.Key, token.Secret, uri, null, "GET");

var request = Loader.CreateRequest(uri, context, "GET", null,
Encoding.ASCII);
request.AllowAutoRedirect = false;
HttpStatusCode statusCode;
ResponseError responseError;
var url = Loader.ReadResponse&lt;string&gt;(request, true, out
statusCode, out responseError);
return statusCode == HttpStatusCode.OK ? url : null;

}
```

18. ProjectTab and PanelTab

When a project tab extension URL is registered on an extension, all projects that activate this extension will get an extra tab on the Project Management/Overview page. The HTML content of this tab page is controlled by the extension and is typically used for extension configuration and reporting. The request that opens the extension tab contains some information about the project and company that can be used by the extension.

The screenshot below illustrates a possible usage scenario as implemented by the SMS Surveys extension.

Direction

Outbound (Forsta Plus -> Extension))

URL

Provided by the extension supplier when the extension is registered in Forsta Plus.

Supported request methods

GET

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- projectId - The project id identifying the survey on this Forsta Plus site.

- dbType - [prod|test]. Indicates if the project is executed in production or test mode.

- isCompanyAdmin - [True|False]. Indicates if the current user is a company administrator or not.

- companyId - A number identifying the company on this Forsta Plus site.

- companyName - The company name as registered on this Forsta Plus site.

Response

HTML

19. Question

A question pack XML file is used to configure a question extension. With this file, the question extension developer can control the behavior and appearance of the question extension. A question pack can contain one or more question pack items. Each of these question pack items will be shown in Forsta Plus as a new question type.

See Appendix 1 for sample XML.

XML Documentation

<QuestionPack>

QuestionPack is the root level of the question extension configuration.

Child elements

Element	Cardinality	Description
Name	1	The name of the question pack.
CompanyName	1	The name of the company that provides the question pack.
QuestionPackItems	1	Container element for the QuestionPackItem instances.

<QuestionPackItems>

QuestionPackItems is a container element for the QuestionPackItem instances.

Child elements

Element	Cardinality	Description
QuestionPackItem	1..*	QuestionPackItem is used to describe a new extension question type in the questionnaire designer.

<QuestionPackItem>

Each QuestionPackItem will appear as a node in the questionnaire designer, and can be used in the same way as native Forsta Plus question types. The question pack item has multiple elements to control the appearance and behavior.

Child elements

Element	Cardinality	Description

Id	1	A GUID (http://en.wikipedia.org/wiki/Globally_unique_identifier) that uniquely identifies the question pack item.
QuestionDefinition	1	Container element that defines the underlying question type.
Name	1	The name of the question pack item. This name is shown in the professional questionnaire designer.
Icon	1	A URL to an icon for the question pack item. This icon should be 16x16 pixels and can be in one of the image formats jpg, gif or png. This icon is shown in the professional questionnaire designer as a node.
ContainerType	1	Defines the extension container type. Legal values: Flash, Silverlight and HtmlJavaScript
QuestionUrl	1	The URL to the question extension. For Flash/Silverlight, this URL will point to the Flash/Silverlight file, while for HtmlJavascript extension, this URL will point to a server side resource responsible for returning HTML/Javascript to be embedded inside Forsta Plus.
Width	0..1	Controls the width of the extension container. Only applicable for Flash and Silverlight containers.
Height	0..1	Controls the height of the extension container. Only applicable for Flash and Silverlight containers.
CssFiles	0..1	Container element allowing the extension developer to include CSS files that can be used from the extension.
JsFiles	0..1	Container element allowing the extension developer to include JS files that can be used from the extension.
QuestionTabs	0..1	Container element that is used to enable extension question tabs inside Forsta Plus. This allows the question extension developer to display addition information and settings inside Forsta Plus.
LaunchNotificationUrl	0..1	The extension can be notified about the launch by providing a URL. This is useful to handle design/runtime settings (used in QuestionTabs above). When the extension is called, it can copy the design time values over to the runtime.
RequiredSilverlightVersion	0..1	Specifies the minimum required version. Only applicable if ContainerType is Silverlight.
RequiredFlashVersion	0..1	Specifies the minimum required version. Only applicable if ContainerType is Flash.
FallbackStrategy	0..1	Controls the fall back if the question extension cannot be loaded. Legal values are RenderNormalQuestion and Fail.
FallbackShowDownloadLink	0..1	A flag that will let Forsta Plus know if it should show download link for Silverlight or Flash.

<QuestionDefinition i:type="[QuestionClass]">

The QuestionDefinition describes the underlying question type. QuestionClass is one of the following: InfoQuestion, DateQuestion, NumericQuestion, OpenQuestion, SingleQuestion, RankingQuestion, NumericListQuestion, OpenTextListQuestion, MultiQuestion, GridQuestion, GridRankingQuestion, Grid3DQuestion, Script, and Folder.

Here are some examples for quick reference. Please look below these examples for detailed reference.

InfoQuestion

```
<QuestionDefinition i:type="InfoQuestion">
<QuestionType>Info</QuestionType>
</QuestionDefinition>
```

DateQuestion

```
<QuestionDefinition i:type="DateQuestion">
<QuestionType>Date</QuestionType>
</QuestionDefinition>
```

OpenQuestion

```
<QuestionDefinition i:type="OpenQuestion">
<QuestionType>Open</QuestionType>
</QuestionDefinition>
```

NumericQuestion

```
<QuestionDefinition i:type="NumericQuestion">
<QuestionType>Numeric</QuestionType>
<LowerLimit>3.3</LowerLimit>
<LowerLimitType>GreaterOrEqual</LowerLimitType>
</QuestionDefinition>
```

SingleQuestion

```
<QuestionDefinition i:type="SingleQuestion">
<QuestionType>Single</QuestionType>
</QuestionDefinition>
```

MultiQuestion

```
<QuestionDefinition i:type="MultiQuestion">
<QuestionType>Multi</QuestionType>
<MultiItemsSelectedEqual>3</MultiItemsSelectedEqual>
</QuestionDefinition>
```

OpenTextListQuestion

```
<QuestionDefinition i:type="OpenTextListQuestion">
<QuestionType>OpenTextList</QuestionType>
</QuestionDefinition>
```

NumericListQuestion

```
<QuestionDefinition i:type="NumericListQuestion">
<QuestionType>NumericList</QuestionType>
</QuestionDefinition>
```

RankingQuestion

```
<QuestionDefinition i:type="RankingQuestion">
<QuestionType>Ranking</QuestionType>
</QuestionDefinition>
```

GridQuestion

```
<QuestionDefinition i:type="GridQuestion">
<QuestionType>Grid</QuestionType>
</QuestionDefinition>
```

GridRankingQuestion

```
<QuestionDefinition i:type="GridRankingQuestion">
<QuestionType>GridRanking</QuestionType>
</QuestionDefinition>
```

QuestionDefintion Detailed Reference

Base class

The following base elements can be used with any of the question classes.

Element	Cardinality	Description
QuestionId	1	The Forsta Plus question id.
QuestionType	1	The type of question. Note that these values differ a little from the QuestionClass values. Legal values are Open (0), Date (1), Numeric (2), Password (3), Multi (5), OpenTextList (6), NumericList (7), Ranking (8), Info (11), Grid3D (12), Single (13), Grid (14), GridRanking (15), Script (16), and Folder (17). The numbers in parenthesis are used for JSON.
Title	0..1	The question title specified per language. See LanguageText.
Text	0..1	The question text specified per language. See LanguageText.
Instructions	0..1	The instruction for the question specified per language. See LanguageText.
Required	0..1	A flag stating if the question is required to be answered.
VariableType	0..1	The variable type. Legal values are Normal (0), Hidden (1), Background (2), PanelVariableHidden (3), and PanelVariableVisible (4). The numbers in parenthesis are used for JSON.
NoCleaningOnQuestionMasking	0..1	A boolean to turn on or off cleaning on question masking.

<LanguageText>

A langauge dependent text.

Child elements

Element	Cardinality	Description
LanguageId	1	The language id for the text.
Value	1	The value string

i:type="InfoQuestion"

InfoQuestion element represents an info question type in Forsta Plus.

Child elements

Inherits elements from the base class.

i:type="DateQuestion"

DateQuestion element represents a date question type in Forsta Plus.

Child elements

Inherits elements from the base class.

i:type="OpenQuestion"

OpenQuestion element represents an open ended question type in Forsta Plus.

Child elements

Inherits elements from the base class.

Element	Cardinality	Description
MaxLength	0..1	The maximum length (Integer) allowed.

i:type="NumericQuestion"

NumericQuestion represents a numeric question type in Forsta Plus.

Child elements

Inherits elements from i:type="OpenQuestion".

Element	Cardinality	Description
Precision	0..1	The numeric question's precision (Integer).
Scale	0..1	The numeric question's scale (Integer).
LowerLimit	0..1	The lower limit (Double).

LowerLimitType	0..1	Legal values are Greater, GreaterOrEqual.
UpperLimit	0..1	The upper limit (Double).
UpperLimitType	0..1	Legal values are Smaller, SmallerOrEqual.

i:type="SingleQuestion"

SingleQuestion represents a single punch question type in Forsta
Plus.

Child elements

Inherits elements from the base class.

Element	Cardinality	Description
Answers	0..1	A container element for Answer elements.
Value	0..1	The value for the question.
DropDown	0..1	A flag (Boolean) for whether the question should be rendered as a dropdown.

XML Example

```
<QuestionDefintion i:type="SingleQuestion">
<QuestionId>q1</QuestionId>
<QuestionType>Single</QuestionType>
<Required>true</Required>
<Answers>
<Answer>
<Code>1</Code>
<Text>
<LanguageText><LanguageId>9</LanguageId><Value>a</Value></LanguageText>
</Text>
</Answer>
<Answer>
<Code>2</Code>
<Text>
<LanguageText><LanguageId>9</LanguageId><Value>b</Value></LanguageText>
</Text>
</Answer>
</Answers>
</Question>
```

<Answer>

Answer for a question. Used by multi punch questions and grids.

Child elements

Element	Cardinality	Description
Code	1	The code for the answer.
Text	0..1	The text for the answer specified per language. See LanguageText.
Exclusive	0..1	A flag for whether the answer is exclusive.
KeepPosition	0..1	A boolean to indicate if the answer should keep the position fixed in the answer list.
Other	0..1	A boolean to indicate if the answer is an other answer.
HasHeader	1	Boolean value indicating whether the answer is grouped under a header.

XML Example

```
<Answer>
<Code>1</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>b</Value></LanguageT
ext></Text>
</Answer>
```

i:type="MultiQuestion"

MultiQuestion element represents a multi punch question type in Forsta
Plus.

Child elements

Inherits elements from the base class.

Element	Cardinality	Description
Answers	0..1	A container element for answers.
MaxLength	0..1	The maximum length (Integer) allowed.
MultiItemsSelectedEqual	0..1	A constraint requiring the number of answers to be equal to this value (Integer).
MultiItemsSelectedMin	0..1	A constraint requiring the number of answers to be at least this value (Integer).
MultiItemsSelectedMax	0..1	A constraint requiring the number of answers to be maximum this value (Integer).
CaptureOrder	0..1	A boolean that specifies if the multi has capture order behavior.

XML Example

```
<QuestionDefinition i:type="MultiQuestion">
<QuestionId>q2</QuestionId>
<QuestionType>Multi</QuestionType>
<Answers>
<Answer>
<Code>1</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>b</Value></LanguageT
ext></Text>
</Answer>
<Answer>
<Code>2</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>b</Value></LanguageT
ext></Text>
</Answer>
</Answers>
<MaxLength>1</MaxLength>
</Question>
```

i:type="OpenTextListQuestion"

OpenTextListQuestion represents an open text list question type in Forsta
Plus.

Child elements

Inherits elements from i:type="MultiQuestion".

i:type="NumericListQuestion"

NumericListQuestion represents a numeric list question type in Forsta Plus.

Child elements

Inherits elements from i:type="OpenTextListQuestion".

Element	Cardinality	Description
MultiSumEqual	0..1	A constraint requiring the sum to be equal to this value (Double).
MultiSumMin	0..1	A constraint requiring the sum to be minimum this value (Double).
MultiSumMax	0..1	A constraint requiring sum to be maximum this value (Double).
Precision	0..1	The numeric list question's precision (Integer).
Scale	0..1	The numeric list question's scale (Integer).
LowerLimit	0..1	The lower limit (Double).
LowerLimitType	0..1	Legal values are Greater, GreaterOrEqual.
UpperLimit	0..1	The upper limit (Double).
UpperLimitType	0..1	Legal values are Smaller, SmallerOrEqual.

XML Example

```
<QuestionDefinition i:type="NumericListQuestion">
<QuestionId>q5</QuestionId>
<QuestionType>NumericList</QuestionType>
<Required>true</Required>
<Answers>
<Answer>
<Code>1</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>a</Value></LanguageT
ext></Text>
</Answer>
<Answer>
<Code>2</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>b</Value></LanguageT
ext></Text>
</Answer>
</Answers>
<Precision>2</Precision>
<Scale>0</Scale>
</Question>
```

i:type="RankingQuestion"

RankingQuestion represents a ranking question type in Forsta
Plus.

Child elements

Inherits elements from i:type="MultiQuestion".

i:type="GridQuestion"

GridQuestion represents a grid question type in Forsta Plus.

Child elements

Inherits elements from the base class.

t	Cardinality	Description
s	0..1	A container element for answer elements.
	0..1	A container element for scale elements.
wn	0..1	A flag (Boolean) whether the question should be a dropdown.
splayOrder	0..1	The display order for the scales. Legal values are InOrder (0), Randomized (1), Rotated (2), Flipped (3), Alphabetical (4). T numbers in parenthesis are used for JSON.

XML Example

```
<QuestionDefinition i:type="GridQuestion">
<QuestionId>q4</QuestionId>
<QuestionType>Grid</QuestionType>
<Required>true</Required>
<Answers>
<Answer>
<Code>1</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>a</Value></LanguageT
ext></Text>
</Answer>
<Answer>
<Code>2</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>b</Value></LanguageT
ext></Text>
</Answer>
</Answers>
<Scales>
<Scale>
<Code>1</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>1</Value></LanguageT
ext></Text>
</Scale>
<Scale>
<Code>2</Code>
<Text><LanguageText><LanguageId>9</LanguageId><Value>2</Value></LanguageT
ext></Text>
</Scale>
</Scales>
</Question>
```

\<Scale\>

Child elements

Element	Cardinality	Description
Code	1	The code for the scale.
Text	1	The text for the scale specified per language. See LanguageText.
HasHeader	1	Boolean value indicating whether the scale is grouped under a header.

i:type="GridRankingQuestion"

GridRankingQuestion represents a grid ranking question type in Forsta
Plus.

Child elements

Inherits elements from i:type="GridQuestion".

i:type="Grid3DQuestion"

Grid3DQuestion represents a 3D grid question type in Forsta Plus.

Child elements

Inherits elements from the base class.

Element	Cardinality	Description
Answers	0..1	A container element for answers.
Questions	0..1	A container element for the 3d grid's questions.

i:type="PasswordQuestion"

PasswordQuestion represents a password question type in Forsta
Plus.

Child elements

Inherits elements from the base class.

Element	Cardinality	Description
MaxLength	0..1	The maximum length (Integer) allowed.

i:type="Folder"

Folder represents a Folder in Forsta
Plus.

Child elements

Inherits elements from the base class.

Element	Cardinality	Description
QuestionDefinitions	1	A container element for the folder's questions.

XML Example

```
<QuestionDefinition i:type="Folder">
   <QuestionId>Folder1</QuestionId>
   <QuestionType>Folder</QuestionType>
   <QuestionDefinitions>
      <Question i:type="OpenQuestion">
        <QuestionId>q1</QuestionId>
        <QuestionType>Open</QuestionType>
      </Question>
      <Question i:type=""NumericQuestion"">
         <QuestionId>q2</QuestionId>
         <QuestionType>Numeric</QuestionType>
      </Question>
   </QuestionDefinitions>
</QuestionDefinition>
```

i:type="Script"

Script represents a script type in Forsta
Plus.

Child elements

Inherits elements from the base class.

Element	Cardinality	Description
Code	1	The script code.

XML Example

```
<QuestionDefinition i:type="Script">
    <QuestionId>script</QuestionId>
    <QuestionType>Script</QuestionType>
    <Code>f('q1').set('1');</Code>
</QuestionDefinition>
```

<CssFiles/JsFiles>

Container element allowing the extension developer to include CSS/JS files that can be used from the extension.

Child elements

Element	Cardinality	Description
ExternalUrl	1..*	Container element that contains information about the CSS/JS resource.

<ExternalUrl>

Container element that contains information about the CSS/JS resource.

Child elements

Element	Cardinality	Description
Url	1	The URL to the CSS/JS resource
SupportHttps	1	A flag that will let Forsta Plus know if it can change the link to https when applicable.

<QuestionTabs>

Container element that is used to enable extension question tabs inside Forsta Plus. This allows the question extension developer to display addition information and settings inside Forsta Plus.

Child elements

Element	Cardinality	Description
QuestionTab	1..*	Represents a question extension tab in Forsta Plus.

<QuestionTab>

Represents a question extension tab in Forsta Plus.

Child elements

Element	Cardinality	Description
Name	1	The name of the question extension tab. This is displayed on the tab header in Forsta Plus.
TabUrl	1	The URL for the content of the question extension tab.

20. QuestionUrl - HTML/Javascript Question Extension

This URL is called when the question HTML/Javascript extension is being rendered in the survey engine.

Direction

Outbound (Forsta Plus -> Extension))

URL

Provided in the question pack in the QuestionUrl element.

Supported request methods

GET

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- projectId - The project id identifying the survey on a Forsta Plus site.

- dbType - [prod|test]. Indicates if the project is executed in production or test mode.

- companyId - A number identifying the company on this Forsta Plus site.

- qid - The question id for the actual question.

- uriScheme - [http|https]. Provides the URI scheme for the container page.

Optional

- respondentId - The respondent's respondentid.

- flashVersion - Flash detection. Contains the Flash version installed on the client machine. If not detected, empty string (""). If detection is not done, this parameter will not be included.

- silverlightVersion - Silverlight detection. Contains the Silverlight version installed on the client machine. If not detected, empty string (""). If detection is not done, this parameter will not be included.

Response

200 OK

21. QuestionUrl - Flash/Silverlight Extension

A URL to the Flash or Silverlight file.

URL

Provided in the question pack in the QuestionUrl element.

For Flash/Silverlight extensions, the QuestionUrl points to the Flash or Silverlight file.

Requires Authentication

false

(see Authentication with OAuth on page 1 for more information)

22. LaunchNotificationUrl

This URL is called when a survey using question extensions are launched. This notification can be used to handle design-time/run-time settings for the extension. For example the extension can keep two sets of settings, one run-time that is used by the extension, and one design-time that is updated from Forsta Plus UI. When the survey is launched, the design-time settings can be made live by copying them over to the run-time settings.

Direction

Outbound (Forsta Plus -> Extension))

URL

Provided in the question pack in the LaunchNotificationUrl element.

Supported request methods

GET

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- projectId - The project id identifying the survey on a Forsta Plus site.
- dbType - [prod|test]. Indicates if the project is executed in production or test mode.
- qids - A comma separated list with the question ids in the question pack container.

Response

200 OK

23. QuestionTab URL

When a question tab URL is present in the question pack, the question extension will get an extra tab on the Question Details page. The HTML content of this tab page is controlled by the extension and is typically used for question extension configuration and reporting. The request that opens the question extension tab contains some information about the project and company that can be used by the extension.

Direction

Outbound (Forsta Plus -> Extension))

URL

Provided in the question pack in the TabUrl element in QuestionTab element.

Supported request methods

GET

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- projectId - The project id identifying the survey on this Forsta Plus site.
- dbType - [prod|test]. Indicates if the project is executed in production or test mode.
- isCompanyAdmin - [True|False]. Indicates if the current user is a company administrator or not.
- hasWriteAccess - [True|False]. Indicates if the current user has write access to the project.
- companyId - A number identifying the company on this Forsta Plus site.
- companyName - The company name as registered on this Forsta Plus site.
- qid - The question id for the actual question.

Response

HTML

24. Scripting

If a scripting extension URL is registered on an extension then the extension can be called from surveys scripts. Data can be past into the script extension with the use of a property bag and data can be returned the same way.

Direction

Outbound (Forsta Plus -> Extension))

URL

Provided by the extension when the extension is registered in Forsta Plus. The format of the URL can be

> https://flex18_5.firmglobal.com/SmsSurveys/{method}.ashx

or

> https://flex15.firmglobal.com/SmsSurveys/SendSMS.ashx

In the second case the method parameter will be passed to the extension as a normal request parameter. Method is specified when calling the extension from a survey script.

Supported request methods

GET and POST. The method used is specified when calling the extension from a survey script.

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- projectId - The project id identifying the survey on this Forsta Plus site.

- dbType - [prod|test]. Indicates if the project is executed in production or test mode.

Optional

- method - The script extension method specified when calling the extension from a survey script.

A property bag as a set of name/value pair(s) sent from a survey script. If it is a POST request the property bag will be sent in the request body.

Response

ContentType

> text/json

Content

> The content returned from the script extension is a json encoded property bag. A set of name/value pars. In the case below it is only one parameter returned.

```
[{"Key":"Status","Value":"OK"}]
```

Sample

How to call a script extension from survey script:

```
function SendSMS()
{
var ext = Extension("SmsSurveyScript");
if(ext.IsValid)
{
var p = new Hashtable();
p["to"] = "4798210000";
p["from"] = "447624803771";
p["text"] = "hello world";
var result = ext.PostRequest("SendSMS", p, 8000);
if(result.IsValid)
{
return result["Status"];
}
return "Result is invalid";
}
return "Extension script name is invalid";
}
```

In the sample above, "SmsSurveyScript" is the Scripting Name as registered in Forsta Plus. This is specified along with the URL.
"SendSMS" is the script method that will be called. The set of supported methods are provided by the extension developers.
The Hastable p is the property bag and 8000 is the timeout in milliseconds that the survey will wait for the call to the script extension to complete.
Survey scripts can call both PostRequest and GetRequest with or without a property bag and a timeout value. The default timeout value is 5000 ms.

How to create the response using the SDK:

```
context.Response.ContentType = "text/json";
var callMethodResponseCollection = new CallMethodResponseCollection
{
new CallMethodResponse {Key = "myKey1", Value = "myValue1"},
new CallMethodResponse {Key = "myKey2", Value = "myValue2"}
};
ScriptingExtension.WriteResponse(context.Response.OutputStream,
callMethodResponseCollection);
```

25. SurveyFrontEnd

The following document describes the data structures used in the Survey Engine Frontend API. The Survey Engine Frontend API can be used to make complete new front ends for the survey engine, for example to support IPhone, Android or SMS surveys.

When using the Survey Frontend API, there are two steps that must be followed.

The initial request

A Survey Engine Frontend API request is performed by making a GET request with a URL where __contenttype=xml or __contenttype=json are appended to a survey engine URL. If you have received a monid, this should also be passed.

> http://aserver.com/wix/p123456789.aspx?__contenttype=xml&monid=732

The request must be signed according to the OAuth standard. A frontend extension will have an OAuth consumer key and secret. The response from this request will be a SurveyPageResponse; the full definition of this element is described in this document.

Posting the answers

When the respondent has answered a page, the answers must be posted back to the Survey Engine Frontend API. This is done by initiating a POST to the URL

> http://aserver.com/wix/p123456789.aspx?__contenttype=xml

The following key/value pairs must be posted.

- The key/value pairs for the SystemFields from the previous request.

- The key/value pair for one of the navigation types (Ok, Back or Forward).

- The key/value pair for each answered question.

This request must also be signed according to the OAuth standard.

The POST does not use XML or JSON format, but just key/value pairs as with normal POST requests.

> **Note for the Flex Question Extension developer**
> **A subset of these structures is also used from Flex Question Extensions. If you are a question extension developer, you will need to understand how these structures are used to define the question types in the question pack XML. In addition, you will also need to understand how the runtime structure is represented (as JSON) in the survey engine. You can ignore the parts describing SurveyPageResponse and Page, and go down to the <Question i:type="[QuestionClass]"> section (this is represented as <QuestionDefinition i:type="[QuestionClass]"> in the QuestionPackItem).**

<SurveyPageResponse>

Child elements

Element	Cardinality	Description
Page	0..1	Represents the survey page. It will have information about system fields, questions, navigation, errors etc.
RedirectUrl	0..1	In case the survey engine has determined that the user should be redirected, this URL is filled out.

XML Example

The response from such a request is a SurvePageResponse object and can be represtented in both XML and JSON. See Appendix 2 for a full example of both XML and JSON responses. Below is an example of a redirect.

```
<SurveyPageResponse xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<RedirectUrl>http://www.google.com/</RedirectUrl>
</SurveyPageResponse>
```

JSON Example

```
{ "RedirectUrl": "http:\/\/www.google.com\/" }
```

<Page>

Represents the survey page. It will have information about system fields, questions, navigation, errors etc.

Child elements

Element	Cardinality	Description
SurveyTitle	1	The survey title. This is the title usually shown on the top of the browser's window (HTML title).
PageTitle	0..1	The page title. Only used if the Authoring page element has a title.
Culture	1	Contains the information about the culture for the request.
SystemFields	1	A container element for system fields represented by the element <SystemField>.
Progress	1	An integer representing the progress of the survey. Will be 0 if a progress bar is not enabled for the survey.
Errors	0..1	A container element for errors on the page. An error is represented by the element <QuestionError>.
Navigation	1	Contains information concerning the type of navigation elements that should be shown on the page.
Questions	1	A container element for questions on the page. See <Question i:type="[QuestionClass]"> for how a question is represented.

<SystemField>

Represents a key value pair for the system fields such as __sid__, respid, __l etc.

Child elements

Element	Cardinality	Description

| Key | 1 | The key for the field. |
| Value | 1 | The value for the field. |

XML Example

```
<SystemFields>
<SystemField>
<Key>__prevPageProgress</Key>
<Value>0.166666666666667;0.166666666666667</Value>
</SystemField>
<SystemField>
<Key>__sid__</Key>
<Value>SID_VALUE</Value>
</SystemField>
<SystemField>
<Key>l</Key>
<Value>9</Value>
</SystemField>
</SystemFields>
```

JSON Example

```
"SystemFields":
[{ "Key": "__prevPageProgress", "Value":
"0.166666666666667;0.166666666666667" },
{ "Key": "__sid__", "Value": "SID VALUE" },
{ "Key": "l", "Value": "9"}],
```

<QuestionError>

The QuestionError is used if the survey engine detects any validation errors on the page or on a question.

Child elements

Element	Cardinality	Description
QuestionId	0..1	The Forsta Plus question id. For page errors, this element is applicable.
Messages	0..1	Container element for Message elements.

XML Example

```
<QuestionError>
<Messages>
<Message>Please provide answers for a, b and c.</Message>
</Messages>
<QuestionId>q3</QuestionId>
</QuestionError>
```

JSON Example

```
[{"Messages": ["Please provide answers for a, b and c."],
"QuestionId": "q3"}]
```

\<Message>

Message element contains a string with the error message.

\<Navigation>

Contains the information concerning the type of navigation elements that should be displayed on the page.

Child elements

Element	Cardinality	Description
ContinueLink	0..1	If the page is to display a continue link, this element will contain the information about the continue link. See \<ContinueLink> below.
Back	0..1	If the page is to display a Back button, this element will contain the information for this button. See \<Back>, \<Forward> or \<OK> below.
Forward	0..1	If the page is to display a Forward button, this element will contain the information for this button. See \<Back>, \<Forward> or \<OK> below.
Ok	0..1	If the page is to display a OK button, this element will contain the information for this button. See \<Back>, \<Forward> or \<OK> below.

XML Example

```
<Navigation>
<Back>
<Key>__bck</Key>
<Value>  &amp;lt;&amp;lt;  </Value>
<Enabled>false</Enabled>
</Back>
<Forward>
<Key>__fwd</Key>
<Value>  &amp;gt;&amp;gt;  </Value>
<Enabled>true</Enabled>
</Forward>
</Navigation>
```

JSON Example

"Navigation": { "Back": { "Key": "__bck", "Value": " << ", "Enabled":false }, "Forward": { "Key": "__fwd", "Value": " >> ", "Enabled":true}}

\<Back>, \<Forward> or \<Ok>

Child elements

Element	Cardinality	Description

Key	1	The key for the field.
Value	1	The value for the field.
Enabled	1	True if that direction is available.

<ContinueLink>

If the page is to display a continue link, this element will contain the information about the continue link.

Child elements

Element	Cardinality	Description
Link	1	The continue link.
Text	1	The text to display for the link.

<Question i:type="[QuestionClass]">

QuestionClass is one of the following: InfoQuestion, DateQuestion, NumericQuestion, OpenQuestion, SingleQuestion, RankingQuestion, NumericListQuestion, OpenTextListQuestion, MultiQuestion, GridQuestion, GridRankingQuestion, Grid3DQuestion, PasswordQuestion, Chart, or LogOn.

Child elements

The following base elements can be used with any of the question classes.

Element	Cardinality	Description
QuestionId	1	The Forsta Plus question id.
QuestionType	1	The type of question. Note that these values differ a little from the QuestionClass values. Legal values are Open (0), Date (1), Numeric (2), Password (3), Multi (5), OpenTextList (6), NumericList (7), Ranking (8), Chart (10), Info (11), Grid3D (12), Single (13), Grid (14), GridRanking (15), and LogOn (16). The numbers in parenthesis are used for JSON.
Title	0..1	The question title.
Text	0..1	The question text.
Instructions	0..1	The instruction for the question.

Required	0..1	A flag stating if the question is required to be answered.
ReadOnly	0..1	A flag stating if the question is read only (visible but disabled).
Category	0..1	This element will contain the value of the "Question Category" in the property sheet in Forsta Plus .
Errors	0..1	Container element from QuestionError elements.
Validations	1	A container element for validations of the question. These validations show how question will be validated on Forsta Plus side and can be used for client validation.Validation represented by the element <Validation>

i:type="InfoQuestion"

InfoQuestion element represents an info question type in Forsta Plus .

Child elements

Inherits elements from <Question i:type="[QuestionClass]">.

i:type="DateQuestion"

DateQuestion element represents a date question type in Forsta Plus .

Child elements

Inherits elements from <Question i:type="[QuestionClass]">.

i:type="OpenQuestion"

OpenQuestion element represents an open ended question type in Forsta Plus .

Child elements

Inherits elements from <Question i:type="[QuestionClass]">.

Element	Cardinality	Description
MaxLength	0..1	The maximum length (Integer) allowed.
Key	0..1	The key is name of the value that needs to be posted back to the server for the question.
Value	0..1	This element will contain the answer if the question has previously been answered.
Rows	1	Specifies the number of rows set for the question
Cols	1	Specifies the number of columns set for the question

TriggerTargets	0..1	Contains an enumerable list of question id strings that are triggered by this question

i:type="NumericQuestion"

NumericQuestion represents a numeric question type in Forsta
Plus.

Child elements

Inherits elements from i:type="OpenQuestion".

Element	Cardinality	Description
Precision	0..1	The numeric question's precision (Integer).
Scale	0..1	The numeric question's scale (Integer).
LowerLimit	0..1	The lower limit (Double).
LowerLimitType	0..1	Legal values are Greater, GreaterOrEqual.
UpperLimit	0..1	The upper limit (Double).
UpperLimitType	0..1	Legal values are Smaller, SmallerOrEqual.

i:type="SingleQuestion"

SingleQuestion represents a single punch question type in Forsta
Plus.

Child elements

Inherits elements from <Question i:type="[QuestionClass]">.

Element	Cardinality	Description
Answers	0..1	A container element for Answer elements.
Key	0..1	The key is the name of the value for the question that must be posted back to the server.
Value	0..1	The value for the question.
DropDown	0..1	A flag (Boolean) for whether the question should be rendered as a dropdown.
DropDownSelectPrompt	0..1	The text to display for the dropdown selection prompt.

XML Example

```
<Question i:type="SingleQuestion">
<QuestionId>q1</QuestionId>
<QuestionType>Single</QuestionType>
<Required>true</Required>
<Answers>
<Answer>
<Code>1</Code>
<Text>a</Text>
</Answer>
<Answer>
<Code>2</Code>
<Text>b</Text>
</Answer>
</Answers>
<Key>q1</Key>
</Question>
```

JSON Example

```
{"__type": "SingleQuestion",
"QuestionId": "q1",
"QuestionType": 13,
"Required": true,
"Answers": [
{"Code": "1", "Text": "a"},
{"Code": "2", "Text": "b"}],
"Key": "q1"
}
```

\<Answer\>

Answer for a question. Used by multi punch questions and grids.

Child elements

Element	Cardinality	Description
Code	1	The code for the answer.
Text	0..1	The text for the answer.
RightText	0..1	A text displayed on the right side of the answer.
Selected	0..1	A flag (Boolean) for whether the answer is selected or not.
Key	0..1	The key is the name of the value for the answer that must be posted back to the server.
Value	0..1	The answer value (for multi "0" or "1"; for grid it is the scale code).
Exclusive	0..1	A flag for whether the answer is exclusive.

Other	0..1	Used if the answer has an open-ended other answer. See <Other>.
HasHeader	1	Boolean value indicating whether the answer is grouped under a header.

XML Example

```
<Answer>
<Code>1</Code>
<Text>a</Text>
</Answer>
```

JSON Example

```
{"Code": "1", "Text": "a"},
```

<HeaderAnswer>

Derived subclass of Answer, used for header answer items.

<Other>

Open ended other answer.

Child elements

Element	Cardinality	Description
Key	1	The key is name of the value that must be posted back to the server for the other answer.
Value	0..1	The value for the other answer.
Required	1	Indicating if answer is required
Cols	1	Specifies the number of columns set for the answer
Rows	1	Specifies the number of rows set for the answer

XML Example

```
<Other>
<Key>q1_3_other</Key>
</Other>
```

JSON Example

```
"Other":{"Key":"q1_3_other"}
```

i:type="MultiQuestion"

MultiQuestion element represents a multi punch question type in Forsta Plus.

Child elements

Inherits elements from <Question i:type="[QuestionClass]">.

Element	Cardinality	Description
Answers	0..1	A container element for answers.
MaxLength	0..1	The maximum length (Integer) allowed.
MultiItemsSelectedEqual	0..1	A constraint requiring the number of answers to be equal to this value (Integer).
MultiItemsSelectedMin	0..1	A constraint requiring the number of answers to be at least this value (Integer).
MultiItemsSelectedMax	0..1	A constraint requiring the number of answers to be maximum this value (Integer).
CaptureOrder	0..1	Indicate that order of selecting answers should be captured

XML Example

```
<Question i:type="MultiQuestion">
<QuestionId>q2</QuestionId>
<QuestionType>Multi</QuestionType>
<Answers>
<Answer>
<Code>1</Code>
<Text>a</Text>
<Key>q2_1</Key>
</Answer>
<Answer>
<Code>2</Code>
<Text>b</Text>
<Key>q2_2</Key>
</Answer>
</Answers>
<MaxLength>1</MaxLength>
</Question>
```

JSON Example

```
{"__type": "MultiQuestion",
"QuestionId": "q2",
"QuestionType": 5,
"Answers": [
{"Code": "1", "Text": "a", "Key": "q2_1"},
{"Code": "2", "Text": "b", "Key": "q2_2"}],
"MaxLength": 1
}
```

i:type="OpenTextListQuestion"

OpenTextListQuestion represents an open text list question type in Forsta Plus.

Child elements

Inherits elements from i:type="MultiQuestion".

Element	Cardinality	Description
Cols	1	Specifies the number of columns set for the question
Rows	1	Specifies the number of rows set for the question

i:type="NumericListQuestion"

NumericListQuestion represents a numeric list question type in Forsta
Plus.

Child elements

Inherits elements from i:type="OpenTextListQuestion".

Element	Cardinality	Description
MultiSumEqual	0..1	A constraint requiring the sum to be equal to this value (Double).
MultiSumMin	0..1	A constraint requiring the sum to be minimum this value (Double).
MultiSumMax	0..1	A constraint requiring sum to be maximum this value (Double).
Precision	0..1	The numeric list question's precision (Integer).
Scale	0..1	The numeric list question's scale (Integer).
LowerLimit	0..1	The lower limit (Double).
LowerLimitType	0..1	Legal values are Greater, GreaterOrEqual.
UpperLimit	0..1	The upper limit (Double).
UpperLimitType	0..1	Legal values are Smaller, SmallerOrEqual.

XML Example

```
        <Question i:type="NumericListQuestion">
<QuestionId>q5</QuestionId>
<QuestionType>NumericList</QuestionType>
<Required>true</Required>
<Answers>
<Answer>
<Code>1</Code>
<Text>a</Text>
<Key>q5_1</Key>
</Answer>
<Answer>
<Code>2</Code>
<Text>b</Text>
<Key>q5_2</Key>
</Answer>
</Answers>
<Precision>2</Precision>
<Scale>0</Scale>
</Question>
```

JSON Example

```
{ "__type": "NumericListQuestion",
"QuestionId": "q5",
"QuestionType": 7,
"Required": true,
"Answers":
[{ "Code": "1", "Text": "a", "Key": "q5_1" },
{ "Code": "2", "Text": "b", "Key": "q5_2"}],
"Precision": 2,
"Scale": 0
}
```

i:type="RankingQuestion"

RankingQuestion represents a ranking question type in Forsta
Plus.

Child elements

Inherits elements from i:type="MultiQuestion".

i:type="GridQuestion"

GridQuestion represents a grid question type in Forsta Plus.

Child elements

Inherits elements from <Question i:type="QuestionWithAnswers">.

Element	Cardinality	Description
Answers	0..1	A container element for answer elements.
Scales	0..1	A container element for scale elements.
DropDown	0..1	A flag (Boolean) whether the question should be rendered as a dropdown.
DropDownSelectPrompt	0..1	The text to display for the dropdown selection prompt.

XML Example

```
<Question i:type="GridQuestion">
<QuestionId>q4</QuestionId>
<QuestionType>Grid</QuestionType>
<Required>true</Required>
<Answers>
<Answer>
<Code>1</Code>
<Text>a</Text>
<Key>q4_1</Key>
</Answer>
<Answer>
<Code>2</Code>
<Text>b</Text>
<Key>q4_2</Key>
</Answer>
</Answers>
<Scales>
<Scale>
<Code>1</Code>
<Text>1</Text>
</Scale>
<Scale>
<Code>2</Code>
<Text>2</Text>
</Scale>
</Scales>
</Question>
```

JSON Example

```
{ "__type": "GridQuestion",
"QuestionId": "q4",
"QuestionType": 14,
"Required": true,
"Answers": [{ "Code": "1", "Text": "a", "Key": "q4_1" },
{ "Code": "2", "Text": "b", "Key": "q4_2"}],
"Scales": [{ "Code": "1", "Text": "1" },
{ "Code": "2", "Text": "2"}]
}
```

\<Scale\>

Child elements

Element	Cardinality	Description
Code	1	The code for the scale.
Text	1	The text for the scale.
HasHeader	1	Boolean value indicating whether the scale is grouped under a header.

\<HeaderScale\>

Derived subclass of Scale, used for header scale items.

i:type="GridRankingQuestion"

GridRankingQuestion represents a grid ranking question type in Forsta
Plus.

Child elements

Inherits elements from i:type="GridQuestion".

i:type="Grid3DQuestion"

Grid3DQuestion represents a 3D grid question type in Forsta Plus.

Child elements

Inherits elements from <Question i:type="QuestionWithAnswers">.

Element	Cardinality	Description
Answers	0..1	A container element for answers.
Questions	0..1	A container element for the 3d grid's questions.

i:type="PasswordQuestion"

PasswordQuestion represents a password question type in Forsta
Plus.

Child elements

Inherits elements from <Question i:type="OpenQuestionBase">.

Element	Cardinality	Description
MaxLength	0..1	The maximum length (Integer) allowed.
Key	0..1	The key is the name of the value that must be posted back to the server for the question.
Cols	1	Specifies the number of columns set for the question

i:type="Chart"

Chart represents a chart node type in Forsta Plus.

Child elements

Inherits elements from <Question i:type="[QuestionClass]">.

Element	Cardinality	Description

Format	1	Legal values: BarHorizontal (1), BarVertical (2), Pie (3), Line (5), Pie3D (8). The numbers in parenthesis are used for JSON.
ChartForQuestion	1	The question ID that the chart is based on.
Url	0..1	A URL to an external chart rendering resource.
TotalCount	1	The total count for the chart.
TotalLabel	1	The total count label.
DataSets	1	Container element for DataSet elements.

XML Example

```
<Question i:type="Chart">
<QuestionId>Chart7</QuestionId>
<QuestionType>Chart</QuestionType>
<ChartForQuestion>q1</ChartForQuestion>
<DataSets>
<DataSet>
<DataPoints>
<DataPoint>
<Label>a</Label>
<Count>1</Count>
<Percent>100</Percent>
</DataPoint>
<DataPoint>
<Label>b</Label>
<Count>0</Count>
<Percent>0</Percent>
</DataPoint>
<DataPoint>
<Label>c (redirect)</Label>
<Count>0</Count>
<Percent>0</Percent>
</DataPoint>
</DataPoints>
</DataSet>
</DataSets>
<Format>BarHorizontal</Format>
<TotalCount>1</TotalCount>
<TotalLabel>Total: </TotalLabel>
</Question>
```

JSON Example

```
{ "__type": "Chart",
"QuestionId": "Chart7",
"QuestionType": 10,
"ChartForQuestion": "q1",
"DataSets": [{ "DataPoints": [
{ "Label": "a", "Count": 1, "Percent": 100 },
{ "Label": "b", "Count": 0, "Percent": 0 },
{ "Label": "c (redirect)", "Count": 0, "Percent": 0}]
}],
"Format": 1,
"TotalCount": 1,
"TotalLabel": "Total: "
}
```

<DataSet>

Child elements

Element	Cardinality	Description
Label	0..1	The label for the chart.
DataPoints	1	Container element for DataPoint elements.

<DataPoint>

Child elements

Element	Cardinality	Description
Label	1	The label for the data point.
Count	0..1	The data point represented as a count (Integer).
Percent	0..1	The data point represented as a percentage (Double).

i:type="LogOn"

LogOn represents a log on question type in Forsta Plus.

Child elements

Inherits elements from <Question i:type="[QuestionClass]">.

Element	Cardinality	Description

UserId	1	An OpenQuestion representing the username field.
Password	1	A PasswordQuestion representing the password field.
Language	0..1	A SingleQuestion representing the language selection.

XML Example

```
<Question i:type="LogOn">
<QuestionId>Internal_Login</QuestionId>
<QuestionType>LogOn</QuestionType>
<Title>Please Log In</Title>
<Text>Please provide your User Name and Password to participate in the
survey.</Text>
<UserId>
<QuestionId>__useriD</QuestionId>
<QuestionType>Open</QuestionType>
<Title>User Name</Title>
<Key>__useriD</Key>
</UserId>
<Password>
<QuestionId>__passwd</QuestionId>
<QuestionType>Password</QuestionType>
<Title>Password</Title>
<Key>__passwd</Key>
</Password>
</Question>
```

JSON Example

```
{ "__type": "LogOn",
"QuestionId": "Internal_Login",
"QuestionType": 16,
"Title": "Please Log In",
"Text": "Please provide your User Name and Password to participate in the
survey.",
"UserId": {
"QuestionId": "__useriD",
"QuestionType": 0,
"Title": "User Name",
"Key": "__useriD" },
"Password": {
"QuestionId": "__passwd",
"QuestionType": 3,
"Title": "Password",
"Key": "__passwd" }
}
```

<Validation>

The Validation element shows what validation will be applied to the question and error message possibly send by Survey Engine

Child elements

Element	Cardinality	Description

ValidationRule	1	Type of validation
ErrorMessage	1	Error message to be shown

ValidationRule can have one of following values

Value	Description
Required	Existst if current question is required
MaxLength	Exists if answer has limited length
Scale	Exists if answer has limited scale
Precision	Exists if answer has limited precision
LowerLimit	Exists if answer should be greater than LowerLimit
UpperLimit	Exists if answer should be lower that UpperLimit
MultiItemsSelectedEqual	Exists if exact number of answers should be selected
MultiItemsSelectedMin	Exists if at least MultiItemsSelectedMinshould be selected
MultiItemsSelectedMax	Exists if not more that MultiItemsSelectedMax answers can be selected
MultiItemsSelectedMinMax	Exists if at least MultiItemsSelectedMin should be selected and not more that MultiItemsSelectedMax answers can be selected
MultiSumEqual	Exists if sum of numeric answer should be equal to MultiSumEqual
MultiSumMin	Exists if sum of numeric answer should be more than MultiSumMin
MultiSumMax	Exists if sum of numeric answer should be less than MultiSumMax
MultiSumMinMax	Exists if sum of numeric answer should be more than MultiSumMin and less than MultiSumMax
Consecutive	Exists if answer should be selected in some sequence
Numeric	Exists if answer should be a number
OtherAnswerRequired	Exists if question has other answer which is required

XML Example

```
<Validations>
<Validation>
<Rule>Required</Rule>
<ErrorMessage>Please provide an answer.</ErrorMessage>
</Validation>
<Validation>
<Rule>MaxLength</Rule>
<ErrorMessage>The answer is longer than 5 characters. Please
review.</ErrorMessage>
</Validation>
</Validations>
```

JSON Example

```
{"Validations":[{"Rule":0,"ErrorMessage":"Please provide an
answer."},{"Rule":1,"ErrorMessage":"The answer is longer than 5
characters. Please review."}]}
```

26. SurveyPageComplete

For each survey page, an async call is made to all activated SurveyPageComplete extensions. This includes a call for the first page, every time the respondent clicks Back or Next and when the user clicks OK at the end of the survey. Except for some system parameters, all parameters contained in the original request are passed to the extension.

Direction

Outbound (Forsta Plus -> Extension)

URL

Provided by the extension supplier when the extension is registered in Forsta Plus.

Supported request methods

GET

Requires Authentication

true

Respondent is identified by the OAuth token.

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- projectId - The project id identifying the survey on a Forsta Plus site.

- dbType - [prod|test]. Indicates if the project is executed in production or test mode.

- ip - The respondents IP address

- requestParams - A URL encoded list of parameters from the orginal respondent request. This list includes question identifiers and answers.

Response

200 OK

Sample

How to decode requestParams:

```
string requestParams = Request["requestParams"];
NameValueCollection nameValues =
HttpUtility.ParseQueryString(HttpUtility.UrlDecode(requestParams));
```

27. SurveyStart

For each initial access to a survey a sync call is made to all activated SurveyStart extensions. Ideally it should be only one activated SurveyStart extension per project.

Direction

Outbound (Forsta Plus -> Extension)

URL

Provided by the extension when the extension is registered in Forsta Plus.

Supported request methods

GET

Requires Authentication

true

(see Authentication with OAuth on page 1 for more information)

Parameters

Required

- projectId - The project id identifying the survey for on a Forsta Plus site.
- dbType - [prod|test]. Indicates if the project is executed in production or test mode.
- ip - The respondents IP address.

Response

ContentType

 text/xml

Content

 When respondent is allowed to continue:

```
<StartEventResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<data i:nil="true" />
<status>Ok</status>
</StartEventResult>
```

 When respondent should be redirected:

```
<StartEventResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<data>http://respondentblocked.myhost.com</data>
<status>Redirect</status>
</StartEventResult>
```

Sample

How to create the response using the SDK:

```
Response.ContentType = "text/xml";
var startEventResult = new StartEventResult(StartEventStatus.Redirect,
"http://respondentblocked.myhost.com");
var serializer = new DataContractSerializer(typeof(StartEventResult));
serializer.WriteObject(Response.OutputStream, startEventResult);
```

28. Appendix 1: Example XML

```xml
<QuestionPack xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<Name>Forsta Plus' question pack</Name>
<CompanyName>Forsta</CompanyName>
<QuestionPackItems>
<QuestionPackItem>
<Id>3ca00000-0000-0000-0000-00000000000b</Id>
<QuestionDefinition i:type="MultiQuestion">
<QuestionType>Multi</QuestionType>
</QuestionDefinition>
<Name>Multi with a twist</Name>
<Icon>http://aserver.com/Icon.jpg</Icon>
<ContainerType>HtmlJavaScript</ContainerType>
<QuestionUrl>http:/aserver.com/Question.aspx</QuestionUrl>
<Width>500</Width>
<Height>400</Height>
<CssFiles>
<ExternalUrl>
<Url>http://aserver.com/test.css</Url>
<SupportHttps>true</SupportHttps>
</ExternalUrl>
<ExternalUrl>
<Url>http://aserver.com/test2.css</Url>
<SupportHttps>false</SupportHttps>
</ExternalUrl>
</CssFiles>
<JsFiles>
<ExternalUrl>
<Url>http://aserver.com/test.js</Url>
<SupportHttps>false</SupportHttps>
</ExternalUrl>
</JsFiles>
<QuestionTabs>
<QuestionTab>
<Name>Tab Name</Name>
<TabUrl>http://someserver.com/tab.aspx</TabUrl>
</QuestionTab>
</QuestionTabs>
<LaunchNotificationUrl>http://aserver.com/tabLaunch.aspx</LaunchNotificat
ionUrl>
</QuestionPackItem>
</QuestionPackItems>
</QuestionPack>
```

29. Appendix 2: Examples of XML and JSON Responses

Example of an XML Response

```
<SurveyPageResponse xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<Page>
<SurveyTitle>IPhone</SurveyTitle>
<Culture>en-US</Culture>
<SystemFields>
<SystemField>
<Key>__prevPageProgress</Key>
<Value>0.142857142857143;0.142857142857143</Value>
</SystemField>
<SystemField>
<Key>__sid__</Key>
<Value>SID_VALUE</Value>
</SystemField>
<SystemField>
<Key>l</Key>
<Value>9</Value>
</SystemField>
</SystemFields>
<Errors>
<QuestionError>
<Messages>
<Message>Please review your responses on this page.</Message>
</Messages>
<QuestionId>q1</QuestionId>
</QuestionError>
</Errors>
<Navigation>
<Forward>
<Key>__fwd</Key>
<Value>  &amp;gt;&amp;gt;  </Value>
</Forward>
</Navigation>
<Questions>
<Question i:type="SingleQuestion">
<QuestionId>q1</QuestionId>
<QuestionType>Single</QuestionType>
<Required>true</Required>
<Category>CategoryA</Category>
<Errors>
<QuestionError>
<Messages>
<Message>Please select an answer.</Message>
</Messages>
<QuestionId>q1</QuestionId>
</QuestionError>
</Errors>
<Answers>
<Answer>
<Code>1</Code>
<Text>a</Text>
</Answer>
<Answer>
<Code>2</Code>
<Text>b</Text>
</Answer>
<Answer>
<Code>3</Code>
<Text>c (redirect)</Text>
<Other>
<Key>q1_3_other</Key>
<Value/>
</Other>
</Answer>
```

```
</Answers>
<Key>q1</Key>
</Question>
</Questions>
</Page>
</SurveyPageResponse>
```

Example of a JSON response

```
{ "Page": {
"SurveyTitle": "IPhone",
"Culture": "en-US",
"SystemFields": [
{ "Key": "__prevPageProgress", "Value":
"0.142857142857143;0.142857142857143" },
{ "Key": "__sid__", "Value": "SID_VALUE" },
{ "Key": "l", "Value": "9"}],
"Errors": [
{ "Messages": ["Please review your responses on this page."],
"QuestionId": "q1"}],
"Navigation": { "Forward": { "Key": "__fwd", "Value": "  &gt;&gt;  "} },
"Questions": [
{ "__type": "SingleQuestion",
"QuestionId": "q1",
"QuestionType": 13,
"Required": true,
"Category": "CategoryA",
"Errors": [{ "Messages": ["Please select an answer."],
"QuestionId": "q1"}],
"Answers": [
{ "Code": "1", "Text": "a" },
{ "Code": "2", "Text": "b" },
{ "Code": "3", "Text": "c (redirect)",
"Other": { "Key": "q1_3_other", "Value": ""}}],
"Key": "q1"
}]
}}
```

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